

SPECIES OF *CHLENIAS* ATTACKING PINES
(LEPIDOPTERA, FAMILY BOARMIIDAE)

BY NORMAN B. TINDALE, SOUTH AUSTRALIAN MUSEUM.

Text figs. 17 and 18.

A species of *Chlenias* was recently discovered attacking *Pinus insignis* plantations at Mount Burr, in the south-east of South Australia. This moth is being studied, from an economic aspect, by the Museum Entomologist (Mr. A. M. Lea) for the Woods and Forests Department.

The purpose of the present paper is to place on record a description of the species, which appears to be new, and to comment on the synonymy of some of its allies, at least one of which is also responsible for damage to pine trees.

CHLENIAS PINI sp. nov.

Figs. 17 B and 18 A-F.

♂ Antennae strongly bipectinate; pectinations at greatest six times the width of segment. Head and thorax brownish-black with scattered white scales; abdomen fawn-coloured. Forewings elongate, triangular, rather broad, costa almost straight, termen sinuate, dorsum straight, clothed with greyish- and silvery-white scales; with numerous blackish scales forming transverse bands; the first from one-fifth costa curves in an irregular half-circle to posterior margin at one-third, and is margined inwardly with white scales; a second line from one-half costa reaches hind-margin at one-half; a broad, irregular, blackish band from costa near apex extends to the anal vein at four-fifths, and is margined on each side with a line of white; some greyish scales usually divide this black band into two unequal parts, the smaller forming a well-defined subterminal spot. Cilia greyish-white. Hindwings dark grey, somewhat lighter at base, cilia as in forewings. Expanse, 48 mm.

♀ Antennal pectinations 2. Forewings more elongate than in male; darker in colour, markings as in male but much obscured. Hindwings narrower; dark grey, slightly lighter at base. Expanse, 48 mm.

Egg. Ovate, nearly smooth or very finely shagreened, hyaline; pale greenish in colour; in an advanced stage of development the colour becomes pale bronzy-grey, and the enclosed larva is visible in dark outline (fig. 18 A).

The empty shell is translucent, whitish with an opalescent sheen, the smaller end is eaten away by the larva prior to emergence (fig. 18 B). Length, $\cdot 84$ mm.; breadth, $\cdot 57$ mm.

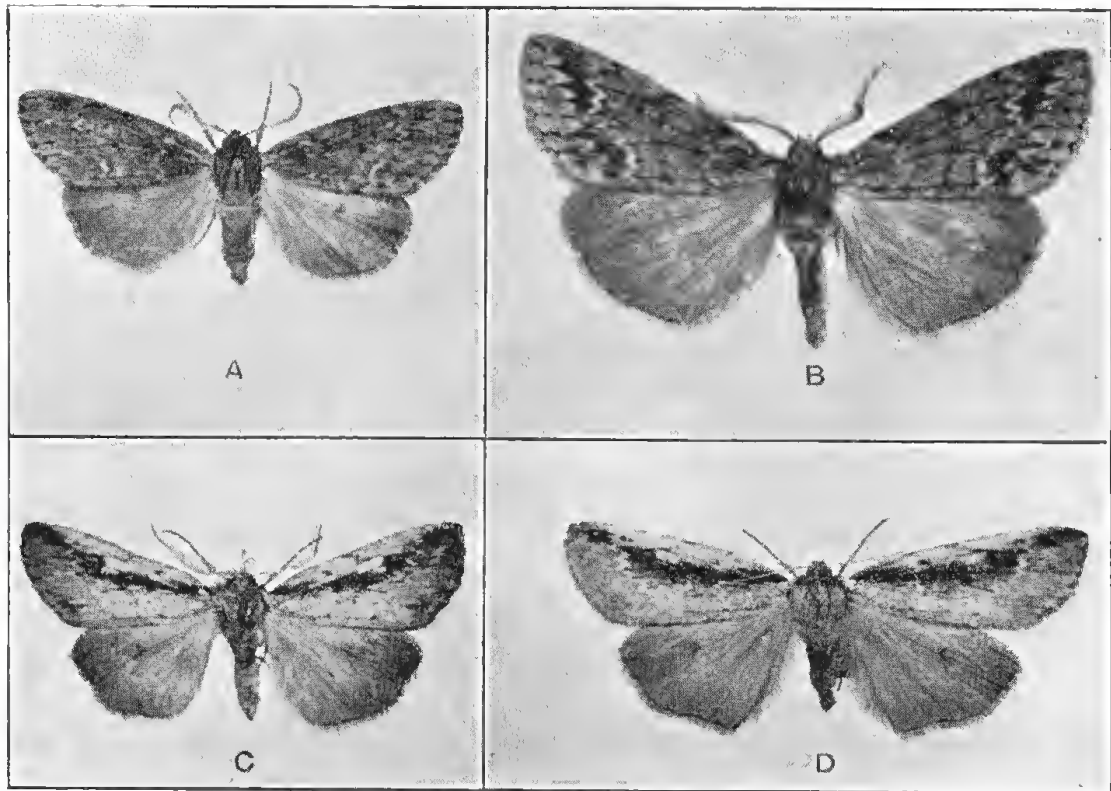


Fig. 17. A, *Chlenias zonaca* Guest, male; B, *Chlenias pini* Tindale, male; C, *Chlenias pachymela* Lower, male; D, *Chlenias pachymela* Lower, female.

Larva. The first instar larva (fig. 18 A) is velvety black, with cream lateral and a white median longitudinal stripe; with numerous small bluish-white spots on the velvety black intervening spaces. The head is ochreous-brown. Length, 2.0 mm. The adult larvae (fig. 18 D) vary from 27 mm. to 35 mm. in length. They are moderately stout, sub-cylindrical, and smooth, clothed with scattered hairs and marked with numerous longitudinal velvety-black, bluish-white, and orange-yellow stripes. Only two pairs of prolegs are present. The head and prothorax are slightly shagreened, bluish-green in colour, with scattered blackish marks and spots. The legs are dull purple, with the tips darker. There is a broad dorsal longitudinal orange stripe running from the mesonotum to the antepenultimate segment of the body, parallel to which are three, sometimes four, velvet-black irregular striae, alternating with broken bluish-white ones. Laterally from these there is a superior lateral orange line bordered below by a

broad black line. In a median lateral position there is a second broader and brighter orange-coloured stripe, interrupted on each segment by a spiracle marked in black and partly surrounded by a whitish suffusion. Between the two

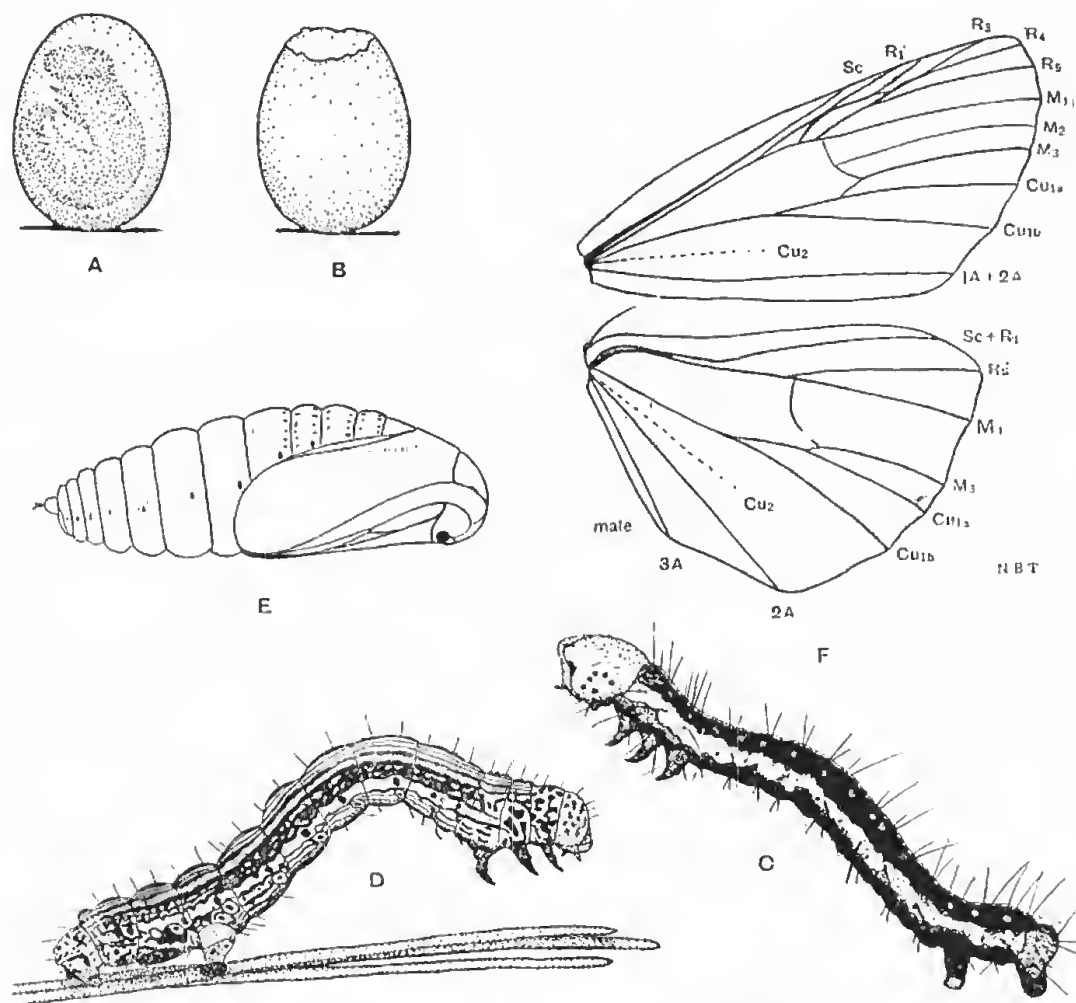


Fig. 18. *Chlenias pini* Tindale. A, egg with advanced embryo ($\times 3$); B, egg shell; C, newly emerged larva ($\times 30$); D, adult larva ($\times 2$ approx.); E, pupa; F, wing venation of male.

orange stripes there are several rows of irregular black lines interspersed with numerous bluish-white hieroglyphic markings. Below the lateral orange stripe there are several lines of velvety-black alternating with white; the pattern of the upper-surface being repeated, except that the area between the first pair of prolegs and the anal extremity is broadly yellowish-green. There is a conspicuous ovate purple patch on the lateral surface of the body, above the first pair of prolegs; the latter are pale green, spotted with black. The anal segment is pale bluish-green, spotted with black.

Owing to the alternation of bluish-white, yellow, and black lines on the body the general colour of the larva appears to be green. The markings of a half-grown larva (12 mm. in length) are similar to those of adult ones.

Pupa. The pupa (fig. 18 E) is enclosed in an oval cocoon of sand, cemented together with silk, or more rarely of pieces of debris from the forest floor. The pupa is dark chestnut-brown, rather stout, smooth, and covered with fine punctures. The wing and antennal coverings are marked with numerous delicate striae, and the four basal abdominal segments bear two dorsal transverse series of deep punctures. Length, 18 mm.

Loc. South Australia: Mount Burr. Type, a male, and allotype female, I. 18313, in South Australian Museum, reared, June, 1928, at Adelaide, from pupae collected by Mr. A. M. Lea in December, 1927.

A female example and several males were taken by Mr. F. Kay at Mount Burr on May 26. About two hundred males and a dozen females emerged in our breeding-boxes during June and July, most of the females appearing during the second and third weeks of the former month. Their adult life is short. A female mated the evening after emergence laid 79 eggs the following night, and was dead on the fifth evening. An examination of some hundreds of pine-needles, which were covered with eggs from end to end, shows that females probably lay normally from 100 to 360 eggs. Newly emerged larvae were obtained in July, and adult larvae and pupae in December. The pupal period extends for nearly six months; probably there is only one, a late autumn or winter brood of moths.

The species is closely allied to *C. zonaea* Guest, from which it differs in size, antennal pectinations, and markings. Guest's description of the larvae of *C. zonaea* differs in several particulars from those of *C. pini*.

Mr. G. Lyell informs me that he has had examples of *C. pini*, from Victoria, in his collection for some years, under the name of *C. zonaea* Meyrick. Even if Meyrick's description applies (in part, if not wholly) to this species, the name *C. pini* will replace *C. zonaea* Meyrick, which is preoccupied by *C. zonaea* Guest.

CILENIAS ZONAEA Guest.

Fig. 17 A.

Chlenias zonaea Guest, Trans. Roy. Soc. S. Austr., 1886, p. 15; Meyrick, Proc. Linn. Soc. N.S. Wales, 1891, p. 665 (in part only?).

In 1886 Guest published a "Classified list of the Geometers of Ballhannah," and included in it descriptions of no less than eleven species (of which the present species is one) under Meyrick's *ms.* names. Although his descriptions are meagre, they are in a valid form, his type-specimens have been preserved,

and it is therefore unfortunately necessary that Meyrick's names, ten of which he subsequently published himself, should sink as synonyms of Guest's.

Guest's type (a male, l. 18207 in South Australian Museum, 38 mm. in expanse, reared from a larva feeding on *Aster*, at Balhannah, April 7, 1886) is figured (fig. 17 A) for comparison with the new species.

CHILENIAS PACHYMELA Lower.

Fig. 17 C and D.

Chlenias pachymela Lower, Trans. Roy. Soc. S. Austr., 1893, p. 162.

An example of this species was received from Mr. C. French, jun. It was reared from a larva feeding on a pine tree, in Victoria. The examples figured (fig. 17 C and D) are from Victoria (Lucas collection). Lower's type example, a male, was from Melbourne. Type, l. 18211, in South Australian Museum.

Loc. Victoria: Melbourne. Tasmania: Launceston (six males, four females).

OTHER SPECIES OF *CHILENIAS* REPRESENTED IN
THE MUSEUM COLLECTION.

CHILENIAS MELANOXYSTA Meyrick.

Chlenias melanoxysta Meyrick, Proc. Linn. Soc. N.S. Wales, 1891, p. 663.

Loc. South Australia: Balaclava (April, 1891, Type, l. 18204, in South Australian Museum), Adelaide (June), Exeter (June), Murray Bridge. New South Wales: Broken Hill (May, *ex* Lower coll.).

CHILENIAS UMBRATICARIA Guenée.

Chlenias umbraticaria Guenée, Hist. Nat. Lep., x, 1857, p. 240; Meyrick, Proc. Linn. Soc. N.S. Wales, 1891, p. 664.

Loc. South Australia: Balhannah (March, April), Blackwood (May), Parkside (May, June). Victoria: Gisborne.

CHILENIAS BANKSIARIA Le Guillou.

Chlenias banksiaria Le Guillou, Rev. Zool., 1841, p. 257; Meyrick, Proc. Linn. Soc. N.S. Wales, 1891, p. 664.

Loc. South Australia: Henley Beach, Adelaide (June), Balhannah (March), Balaclava (April). Victoria: Caulfield. Tasmania: Launceston (May, June).

CHLENIAS SEMINIGRA Rosenstock.

Chlenias seminigra Rosenstock, Ann. Mag. Nat. Hist., (5) 16, 1885, p. 430;
Meyrick, Proc. Linn. Soc. N.S. Wales, 1891, p. 666.

Chlenias psolina Turner, Proc. Linn. Soc. N.S. Wales, 1919, p. 401.

Loc. Victoria: Melbourne.

CHLENIAS SERINA Lower.

Chlenias serina Lower, Trans. Roy. Soc. S. Austr., 1900, p. 36.

Loc. New South Wales: Broken Hill (May 1, 1900, Type I. 18210, in South Australian Museum, also April, June, July).

CHLENIAS MELANOSTREPTA Lower.

Chlenias melanostrepta Lower, Trans. Roy. Soc. S. Austr., 1893, p. 161.

Loc. South Australia: Blackwood (April 7, 1892, Type I. 18212 in South Australian Museum).

CHLENIAS CYCLOSTICHA Lower.

Chlenias cyclosticha Lower, Proc. Linn. Soc. N.S. Wales, 1915, p. 477.

Loc. New South Wales: Broken Hill (June, Type I. 18216, in South Australian Museum).

CHLENIAS GONOSEMA Lower.

Chlenias gonosema Lower, Trans. Roy. Soc. S. Austr., 1893, p. 162.

Loc. Victoria: Toorak, near Melbourne (Type I. 18213, in South Australian Museum).